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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,445	05/25/2001	Minoru Iwamoto	PF-2802/NEC/US/mh	2650

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EXAMINER
THAI, LUAN C

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 09/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/864,445	Applicant(s) IWAMOTO, MINORU	
	Examiner Luan Thai	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) filed on 9/04/01 has been considered by the examiner.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (4,989,062).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1, 6, and 8, Takahashi et al disclose (see specifically figures 1,4 and 7A-7B) a power line connection structure for connecting a semiconductor integrated circuit (IC) to a functional macro, the structure comprising: plural first power lines 41a on a first level that provide a first voltage (Vss) to the functional macro and plural second power lines 41b on the first level

that provide a second voltage (Vdd), different than the first voltage (Vss), to the functional macro, the first and second power lines being parallel to each other; plural third power lines 43a on a second level, different than the first level, that provide the first voltage (Vss) to the IC and plural fourth power lines 43b on the second level that provide the second voltage (Vdd) to the IC, the third and fourth power lines being parallel to each other, and also parallel to the first and second power lines; plural power terminal patterns 21-22 (being connected to power lines 42a-42b respectively) on a third level between the first and second levels, each of plural power terminal patterns extending on the third level between a first area corresponding to an adjacent pair of the first and second power lines and a second area corresponding to an adjacent pair of the third and fourth lines so that each of the plural power terminal patterns transverses the first, second, third, and fourth power lines (see figures 1 and 4), a first set 21 of the power terminal patterns 21-22 being connected to the first and third power lines 41a-43a and second set 22 of the power terminal patterns 21-22, which does not include any of the first set, being connected to the second and fourth power lines 41b-43b.

Takahashi et al further disclose (see figures 7A-7B) a first insulator 64 that separates the first level (61) from the third level (62) and a second insulator (65) that separates the third level (62) from the second level (63), and contact plugs 67-66 that extend in respective ones of the first and second insulators to connect the first power lines to the third power lines and the second power lines to the fourth power lines.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2, 3, 9-10, 13, 15-17, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (4,989,062) in view of Mimoto et al (6,326,693).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 2, 3, 9-10, 13, 15-17, 20, and 22, Takahashi et al disclose all the limitations of the claimed invention as detailed above except for the power terminal patterns having the same shape and size.

Power terminal patterns having the same shape and size, however, are conventional in the art, specifically in cell array semiconductor integrated circuit art, as disclosed by Mimoto et al (Col. 6, lines 39+, Col. 7, lines 44+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the power terminal patterns having the same shape and size in Takahashi et al's device, since such structure of the power terminal patterns are conventional in the art, as taught by Mimoto et al.

7. Claims 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (4,989,062) in view of Noda et al (5,095,352) and Yutaka et al (5,850,091).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 4-5 and 7, the device structure of Takahashi et al discloses all the limitations of the claimed invention as detailed above except for the shape of power terminal patterns (e.g., geometrical shape (claims 4-5) or zigzag shape (claim 7)).

Although the device structure of Takahashi et al does not teach the exact shape of the power terminal patterns as that claimed, the shape differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. Additionally, the Applicant has presented no discussion in the specification which convinces the Examiner that the particular shape of the power terminal patterns is anything more than one of numerous shapes a person of ordinary skill in the art would find obvious for the purpose of providing power supply. *In re Dailey*, 149 USPQ 47 (CCPA 1976). It appears that these changes produce no functional differences and therefore would have been obvious.

Furthermore, power terminal patterns having the shape of geometric or zigzag is conventional in the art, as disclosed by Noda et al (see figures 4-5 and 7-9) and Yutaka et al (see figures 10, Col. 16, lines 1+), respectively. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to form the power terminal patterns having the geometric or zigzag shape in the device structure of Takahashi et al, since such power terminal pattern's shapes (e.g., geometric and zigzag) are conventional in the art, as taught by Noda et al and Yutaka et al, respectively.

8. Claims 11-12, 14, 18-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (4,989,062) in view of Mimoto et al (6,326,693) and further in view of Noda et al (5,095,352) and Yutaka et al (5,850,091).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 11-12, 14, 18-19, and 21, the proposed device structure of Takahashi et al and Mimoto et al discloses all the limitations of the claimed invention as detailed above except for the shape of power terminal patterns (e.g., geometrical shape (claims 11-12 and 18-19) or zigzag shape (claims 14 and 21)).

Although the proposed device structure of Takahashi et al and Mimoto et al does not teach the exact shape of the power terminal patterns as that claimed, the shape differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. Additionally, the Applicant has presented no discussion in the specification which convinces the Examiner that the particular shape of the

power terminal patterns is anything more than one of numerous shapes a person of ordinary skill in the art would find obvious for the purpose of providing power supply. *In re Dailey*, 149 USPQ 47 (CCPA 1976). It appears that these changes produce no functional differences and therefore would have been obvious.

Furthermore, power terminal patterns having the shape of geometric or zigzag is conventional in the art, as disclosed by Noda et al (see figures 4-5 and 7-9) and Yutaka et al (see figures 10, Col. 16, lines 1+), respectively. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the power terminal patterns having the geometric or zigzag shape in the proposed device structure of Takahashi et al and Mimoto et al, since such power terminal pattern's shapes (e.g., geometric and zigzag) are conventional in the art, as taught by Noda et al and Yutaka et al, respectively.

9. The following reference(s) is/are cited as of interest to this application:

U.S. Pat. No. 6,269,466 to Crafts is cited for showing groups of the cells being connected among themselves into functional units, which are called "Macros" (Col. 1, lines13+).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211. The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Luan Thai
August 29, 2002

DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800